

Abstract

A method and a plasma system (5) are proposed for anisotropically etching structures into a substrate (21) positioned in an etching chamber (12), in particular structures defined using an etching mask in a silicon substrate, using a plasma (22). For this purpose, the etching chamber (12) is supplied at least intermittently with an etching gas and at least intermittently with a passivation gas, the passivation gas being supplied to the etching chamber (12) in cycles having a time period of the passivation gas cycles between 0.05 second and 1 second. In the plasma system (5), in addition to a plasma source (19), via which the plasma (22) acting on the substrate (21) may be produced, means (17, 23, 24, 25, 26, 27, 28, 29, 30) are provided for at least temporary supply of the etching gas and at least temporary supply of the passivation gas to the etching chamber (12), which are designed in such a way that the passivation gas may be supplied to the etching chamber (12) in cycles, the passivation gas cycles having a time period between 0.05 second and 1 second.

Figure 1